

## REMARKS

Claims 1-38 were originally filed in United States serial no. 09/864,508 on May 24, 2001. Reconsideration and allowance of claims 1-9, 11-21, 23-35, 37, and 38 based on the amendments and remarks presented herein, is respectfully requested. A petition for a two-month extension of time to respond is submitted with this response.

### 35 USC §112 REJECTIONS

Claims 1-38 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

To better clarify claims 1, 11, and 25 ranges for the components - polymer, hydrophobic material, and surfactant have been added to the claims. Support for the ranges is on Page 5, Lines 18-22 of the Specification and in former claims 10, 22, and 36.

The phrase "polymeric latex" in claim 6 has been alleged to lack proper antecedent basis. Claim 5 has been amended to state "The admixture of claim 1, wherein the polymer is a latex polymer selected from the group consisting of...." Support for the amendment is at Page 4, Lines 27-30 in the Specification. Claim 6 has been amended to state "The admixture of claim 5, wherein the latex polymer is a styrene butadiene copolymer latex." The support for the amendment is found on Page 4, Lines 27-31 in the Specification. The amendments do not narrow the scope of the claims, but are merely added for clarification.

The phrase "polymeric latex" in claim 18 has been alleged to lack proper antecedent basis. Claim 17 has been amended to state "The cementitious composition of claim 11, wherein the polymer is a latex polymer selected from the group consisting of...." Support for the amendment is at Page 4, Lines 27-30 in the Specification. Claim 18 has been amended to state "The cementitious composition of claim 17, wherein the latex polymer is a styrene butadiene copolymer latex." The support for the amendment is found on Page 4,

Lines 27-31 in the Specification. The amendments do not narrow the scope of the claims, but are merely added for clarification.

The phrase "polymeric latex" in claim 32 has been alleged to lack proper antecedent basis. Claim 31 has been amended to state "The method of claim 25, wherein the polymer is a latex polymer selected from the group consisting of...." Support for the amendment is at Page 4, Lines 27-30 in the Specification. Claim 32 has been amended to state "The method of claim 31, wherein the latex polymer is a styrene butadiene copolymer latex." The support for the amendment is found on Page 4, Lines 27-31 in the Specification. The amendments do not narrow the scope of the claims, but are merely added for clarification.

### **35 USC §103(a) REJECTIONS**

Claims 1-4, 7-16, 19-30 and 33-38 have been rejected under 35 U.S.C. 103(a) as being unpatentable over PCT International Application No. 98/05709. 98/05709 discloses an admixture that alleges water-repellency and flexural bond strength in mortar, concrete or cement. The admixture includes: (a) a C<sub>8</sub>-C<sub>30</sub> fatty acid and (b) a flexural bond strength enhancing material (enhancing material) comprising a polymer having a backbone to which are attached carboxyl cement anchoring groups and oxyalkylene groups attached by linkages selected from the group consisting of an amide, an imide, and an ester.

Applicants respectfully traverse the rejection of claims 1-4, 7-16, 19-30 and 33-38 under 35 U.S.C. 103(a). The enhancing material of 98/05709 differs in both chemical form and function from the polymer of the present invention. 98/05709 on Page 3 starting on Line 3 defines the function of the enhancing material by stating: "The term "cement anchoring" is meant to refer to ionic bonds formed between the polymer's carboxylate groups and the calcium cations in the wet cementitious mortar, while non-ionic pendant groups on the polymer backbone are believed to facilitate the dispersion of cement particle(s) within the aqueous mortar mixture." The function of the comb polymer is further disclosed in U.S. Patent 5,393,343 (incorporated by reference on Page 5, Line 10 of 98/05709), "Specifically, the present invention relates to an improved hydraulic cement composed of a mixture of an imidized acrylic polymer, as fully described below and

hydraulic cement and to hydraulic cement compositions such as mortars and concrete which is capable of imparting high flowability to said compositions and of causing the treated composition to retain high flowability over a sustained period of time without imparting a significant delay in the initial set time for the composition. (Col 1, Lines 9-19 of USPN 5,393,343) Therefore, the enhancing material disclosed in 98/05709 does not increase the water repellency of cementitious compositions as does the polymer of the present invention but rather functions as a cement dispersant, wherein it uses cement anchoring molecules to disperse cement particles. This is in contrast to the polymer of the present invention which provides further resistance to water permeation by closing the inter-connected porosity inside the cementitious article, particularly when the water is being driven against the cementitious article such as during a rainstorm. (Spec Page 6, Line 30 to Page 7, Line 5)

Additionally, as the enhancing material functions as a cement dispersant it is hydrophilic, as stated on Page 20, Lines 19 and 20 of 98/05709, "... the resultant imidized acrylic polymer is water soluble." This property which is necessary to its function as a cement dispersant is in contrast to the hydrophobic polymer of the present invention which is added to the cementitious solution as a latex dispersion.

Nowhere in the 98/05709 reference is it suggested, disclosed or taught that the enhancing material has any other function but to aid dispersion of cement particles. Specifically, the reference does not disclose that its enhancing material provides resistance to water permeation in cementitious articles as the polymer of the present invention does. Therefore, the use of a water soluble cement dispersant with a fatty acid ester would not lead one of ordinary skill in the art to practice the present invention which uses a water insoluble polymer and a hydrophobic material to provide resistance to water permeation of cementitious articles. In accordance with the above, it is respectfully submitted that claims 1-4, 7-16, 19-30 and 33-38 are not obvious under 35 U.S.C. §103(a) in view of PCT International Application No. 98/05709.

Claims 1-5, 7-8, 10-17, 19, 22-25, 28-31, 33 and 36-38 have been rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,763,508 to Hess et al. The patent discloses dispersion powders including (a) a polymer of vinyl ester, vinyl

ester/ethylene, (meth) acrylate or styrene/acrylate homo- and copolymers, (b) a protective colloid, (c) saturated carboxylic acid ester, (d) and a caking agent.

Applicants respectfully traverse the rejection of claims 1-5, 7-8, 10-17, 19, 22-25, 28-31, 33 and 36-38 under 35 U.S.C. 103(a). The '508 reference differs from the present invention in that it discloses and teaches a dispersion powder that displays a defoaming action and reduces air content in mortar and concrete ('508 Col 1, Lines 13-15), not an admixture composition that increases water repellency in cementitious compositions. The powder of the '508 reference contains much less carboxylic acid ester (hydrophobic material) than the admixture of the present invention per total weight of the components. The formulation of the '508 reference dry powder dispersion is calculated on the weight of the polymer, as stated in claim 1, . . . "(b) 1 to 25% by weight, based on the total weight of the polymer (a) of a protective colloid, (c) 0.1 to 10% by weight, based on the total weight of the polymer (a), of at least one carboxylic acid ester . . . ." As stated previously, this formulation produces a powder with a much reduced concentration of hydrophobic material compared to the admixture composition of the present invention.

In the formulation of claim 1 of the present invention the hydrophobic material is present in the admixture from about 20% to about 50% based on the total weight of the admixture. The amount of hydrophobic material in the powder of the '508 reference is several orders of magnitude lower than that of the admixture of the present invention and would not provide the water repellent properties of the current inventive composition. The highest level of carboxylic acid ester in the '508 reference is 10% of the weight of the polymer - 1 to 10 ratio of hydrophobic material to polymer, whereas the amount of hydrophobic material compared to the amount of polymer in the present invention ranges from 1 to 1 (20% hydrophobic material to 20% polymer) to 100 to 1 (50% hydrophobic material to 0.5% polymer)— several orders of magnitude difference. The hydrophobic material of the present invention therefore contributes to a water repellant admixture while the carboxylic acid ester of '508 does not.

As stated in the specification of the application "Without being limited to theory, it is theorized that the hydrophobic material provides the water repellant properties. By being

mixed into the cementitious mixture, the hydrophobic material is substantially evenly distributed in the cementitious matrix, as well as on the surface where it prevents the wetting of the cementitious article, and also reduces the efflorescence." (Spec Page 6, Lines 21-26) This is in contrast to the carboxylic acid ester used in the '508 reference which is used in amounts sufficient to disperse the polymer in cementitious compositions, not to provide water repellency to cementitious compositions. Further, the formulation in the '508 reference does not teach or suggest using levels of hydrophobic material in the dispersion that are higher than the polymer. Therefore, it is respectfully submitted the '508 reference does not teach, suggest, or motivate one of ordinary skill in the art to produce a water repellant admixture, and that claims 1-5, 7-8, 10-17, 19, 22-25, 28-31, and 36-38 are not obvious under 35 U.S.C. §103(a) in view of U.S. Patent No. 5,763,508.


Claims 1-3, 5-7, 10-15, 17-19, 22-29, 31-33 and 36-38 have been rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,151,150 to Peters et al. The '150 reference discloses cement compositions having improved strength and enhanced adhesion to siliceous substrates that are obtained by admixing portland cement with a cement additive comprising (1) a styrene-butadiene interpolymeric latex containing up to about 60 parts by weight of interpolymer solids, with the latex present in an amount sufficient to provide from about 5 to about 25 parts by weight of latex polymer solids based on the weight of the cement and (2) from about 0.05 to about 3 parts by weight of latex solids of a silane.

Applicants respectfully traverse the rejection of claims 1-5, 5-7, 10-15, 17-19, 22-29, 31-33 and 36-38 under 35 U.S.C. 103(a). The '150 reference from, and would not render the present invention obvious in that the dispersant powder requires the use of a silane compound. The reference, by requiring the silane compound, teaches against the present invention in that it states, "The data further illustrates that addition of the silane compound to the latex unexpectedly enhances the strength properties of such cement mortar composition containing latex only as the cement modifier." ('150 Col 5, Lines 18-24) Unlike the present invention which teaches an admixture that imparts water repellent properties and prevents water permeation in poured concrete and in articles (Spec Page 6, Line 18 to 21), the '150 reference teaches to one skilled in the art that to achieve the

improved strength and adhesion of the invention a silane compound needs to be added to the latex. The '150 reference does not teach, suggest, or motivate one of skill in the art to increase the water repellency of cementitious compositions, but rather discloses that cementitious compositions that contain latex polymers without silane compounds (as in the present invention) do not provide the enhanced strength properties to cement. Further, if the present inventive admixtures increased adhesion, it would not be possible to release manufactured concrete products, blocks, or other formed cementitious products from their molds. Therefore, it is respectfully submitted that claims 1-3,5-7,10-15,17-19,22-29,31-33 and 36-38 are not obvious under 35 U.S.C. §103(a) in view of U.S. Patent No. 4,151,150.

In view of the remarks and amendments contained above, Applicants respectfully request reconsideration of the application, withdrawal of the 35 USC §103(a) & §112 rejections, and request that a Formal Notice of Allowance be issued for claims 1-9, 11-21, 23-35, 37 and 38. Should the Examiner have any questions about the above remarks and amendments, Applicants' undersigned attorney would welcome a telephone call.

Respectfully submitted,

  
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